

Estuary Water Quality Parameters Information Sheet

National Estuarine Research Reserve System

Water Test	What It Measures	Natural Reading	Danger Reading	Influenced by	Comments
Water Temperature	Amount of heat in water	0° - 30° C	Generally above 27 C (81 F)	-- solar heat -- groundwater -- industrial cooling	Many estuary organisms have a narrow temperature tolerance range.
pH	Acidity or alkalinity of water,	Freshwater is typically between 6 and 8; salt water generally 8 or higher	Below 6 or above 8.5; some freshwater areas may have natural pH of 5 - 6	-- local plants and soils -- acid rain -- atmospheric CO ₂ -- chemical spills	Low pH levels affect the ability of organisms to incorporate calcium carbonate.
Turbidity	Clearness of the water (NOT color)	0-10 NTU, Nephelometric Turbidity Units	Above 20 NTU	-- sediment -- excessive algae growth -- storms	Turbidity determines how much light can penetrate to reach seagrasses. It is an indicator of the level of phytoplankton or silt in the water and is closely linked with eutrophication.
Dissolved Oxygen	Amount of available oxygen in water (in between water molecules)	5-12 ppm (parts per million)	Below 5 = stress 1-3 = poor 0 = anoxic (no oxygen)	-- photosynthesis -- wind -- waves -- running water	D.O. is vitally important to estuary organisms. Warmer temps allow less O ₂ to be dissolved. Decomposers may deplete D.O.
Salinity	Amount of salt in the water	0 ppt (parts per thousand) for freshwater; about 5 – 30 ppt for estuaries; about 35 ppt for oceans	Salinity can be 40 ppm or higher in salt marsh tide pool on a hot day; lethal for most estuary creatures.	-- tide level -- rain events -- evaporation -- local geology & soils	Most marine and aquatic organisms are adapted to either fresh water (0 ppt) or sea water (35 ppt). Some estuary organisms and anadromous fish can tolerate a wide salinity range.
Water level	Depth of water	0 m (meters) if uncovered at low tide; up to tens of meters in estuaries	Depends on location; if normally submerged, 0 m is danger reading.	-- tides -- wind direction -- wind speed -- storms -- atmospheric pressure	Estuaries have wide variation in water levels. Some organisms must be able to survive both salt water inundation and exposure to air.